APPENDIX C:
COMPLIANCE ASSURANCE MONITORING EVALUATION AND PLAN

University of Idaho - Compliance Assurance Monitoring (CAM) Evaluation

	Emissions Unit	Has a Control Device?	Pollutant Control Device Captures?	Uncontrolled Potential Emissions tons/year	Uncontrolled Potential Emissions > 100 tons/year ?	Has an Emission Limit?	CAM?	Reason(s)
S-BA	Solid Fuels Wood-Waste Fired Boiler	YES	PM10	162.6	YES	YES	**YES**	**CAM APPLIES**
S-BB	Cleaver-Brooks Natural Gas-Fired Boiler	NO					NO	No Control Device, No Uncontrolled Emissions > 100 tons/year
S-BC	Babcock & Wilcox Natural Gas-Fired Boiler	NO					NO	No Control Device, No Uncontrolled Emissions > 100 tons/year
S-BD	Combustion Engineering Natural Gas-Fired Boiler	NO					NO	No Control Device, No Uncontrolled Emissions > 100 tons/year
SG-01	Diesel Fired-Electrical Generator Engine	NO					NO	No Control Device, No Uncontrolled Emissions > 100 tons/year
SG-02	Diesel Fired-Electrical Generator Engine	NO					NO	No Control Device, No Uncontrolled Emissions > 100 tons/year
SG-03	Diesel Fired-Electrical Generator Engine	NO					NO	No Control Device, No Uncontrolled Emissions > 100 tons/year

Compliance Assurance Monitoring (CAM) Plan

Wood-fired Boiler Stack Multiclone

University of Idaho
1108 West 6th Street
Moscow, ID 83844-2030

May, 2007

CAM Plan

Wood-fired Boiler Stack Multiclone for Particulate Control

I. Background

A. Facility:

University of Idaho
1108 West 6th Street
Moscow, ID 83844-2030

B. Emissions Unit

Wood-fired Boiler S-BA (formerly S-B00 in T1-060203)

C. Control Device

Multiclone (Barron)

D. Applicable Regulation or Requirement

IDAPA 58.01.01.676 (Standards for New Sources)
Idaho Tier I Permit: T1-060203, Section 3.3

E. Emission Limits

PM: 0.080 gr/dscf of effluent gas corrected to 8% oxygen by volume,
PM_{10}: 17.24 lbs/hour,
PM_{10}: 75.52 tons/year

F. Monitoring

Differential pressure across the multiclone is monitored and recorded hourly.

G. Indicator Range

Pressure drop of 1 to 6 inches of water column.

II. Discussion

The University of Idaho (University) has developed this compliance assurance monitoring (CAM) program for the wood-fired boiler stack multiclone at the Moscow, Idaho, campus steam plant. The multiclone is operated to achieve compliance with the wood-fired boiler particulate matter grain loading and emission rate limits. This compliance assurance monitoring program is intended to provide a reasonable assurance that the control equipment is operating properly. By extension, proper operation of the multiclone provides reasonable assurance that wood-fired boiler particulate emissions are in compliance with the applicable limits.

III. Monitoring Approach

The key elements of the monitoring approach are presented in the following table.

TABLE 1. MONITORING APPROACH

I. Indicator	Multiclone differential pressure.
II. Measurement Approach	The inlet and outlet of the multiclone are monitored using a differential pressure transducer. The value from the pressure transducer is recorded hourly in the control room by operations personnel. Values from the differential pressure transducer will be averaged every 24 hours.
III. Indicator Range[1]	An excursion is defined as a daily (24-hour) average differential pressure of below 1 or above 6 inches of water pressure. An excursion triggers an inspection and possible corrective action.
IV. Performance Criteria A. Data Representativeness	Pressure drop is measured directly across the inlet and outlet of the multiclone. The minimum accuracy of the device is ±1 inch water pressure.
B. Verification of Operational Status	Boiler operators will check operation of the differential pressure at least once per day.
C. QA/QC Practices and Criteria	The pressure transducer is calibrated in accordance with manufacturer's recommendations.
D. Monitoring Frequency	Pressure drop is recorded once per hour. Data is permanently stored in the boiler operator's logs.
E. Data Collection Procedures	Pressure drop is recorded once per hour by the boiler operator; 24-hour averages will be calculated once per day.
F. Averaging Period	24-hours[1]
G. Stack Test	The University will conduct an initial performance test to confirm or establish the indicator parameter values in accordance with 40 CFR Part 60, Appendix A, Method 5. The test will verify that operation of the multiclone within the indicator range will result in compliance with the boiler particulate matter emissions standards set out in the Tier I permit.

[1] The above indicator ranges are a 24-hour average pressure range. Short-term spikes above or below this average do not necessarily indicate an excursion or trigger corrective action.

IV. Monitoring Approach Justification

A. Background

The University operates a wood-fired boiler at their facility in Moscow, Idaho. The primary purpose of the wood-fired boiler is to produce steam for heating the campus buildings during cold weather and to provide steam to absorption chillers to cool the campus buildings during the summer. The boiler is rated at 60,000 pounds of steam per hour. A multiclone is used to control particulate emissions from the boiler stack.

This University CAM plan is specific to monitoring the performance of the wood-fired boiler multiclone to ensure compliance with applicable particulate emission rate limits.

B. Rationale for Selection of Pressure Drop as a Performance Indicator

The pressure drop through the multiclone will be monitored continuously. Pressure drop across the multiclone is not, in and of itself, a direct indication of particulate emissions from the boiler. Monitoring the pressure drop, however, can demonstrate that the multiclone is being operated and maintained in a manner consistent with good pollution control practices to minimize emissions. Changes in pressure drop may indicate required preventative maintenance to assure continued compliance with the relevant standard. For example, an increase in pressure drop can indicate that the multiclone is being clogged with particulate and is therefore not effective. Decreases in pressure drop may indicate significant leaks or damage to the multiclone, which would allow particulate emissions to escape uncontrolled. Monitoring of pressure drop will help ensure that timely corrective action is taken before emissions deviations occur.

C. Rationale for Selection of Indicator Range

The indicator range for the multiclone pressure drop has been based on manufacturer's recommendations and previously recorded values. The manufacturer (Barron) recommends an operating pressure drop of 1 to 6 inches of water column. Also, the University's Tier I permit currently requires monitoring of multiclone pressure drop. At least 5 years of historical data are on file for reference.

V. Corrective Action

Corrective action must be initiated as soon as reasonably practicable after the 24-hour average differential pressure drops below or exceeds the established indicator range. Corrective action should be completed within a reasonable time after its initiation. Corrective action will be documented through the plant work order system. If appropriate corrective action does not expeditiously return the indicator parameter to within the acceptable range, the plant will, as soon as practicable, conduct Method 5 testing to demonstrate compliance with the standard and, if appropriate, to establish a new differential pressure indicator range.

VI. Stack Test

After Department approval of this CAM plan, the University will submit a stack testing schedule and plan to the Department for approval. This schedule and plan will describe a Method 5 testing campaign to confirm the existing pressure drop indicator range for the wood-fired boiler multiclone or establish a new range, if required.